

Figure 1

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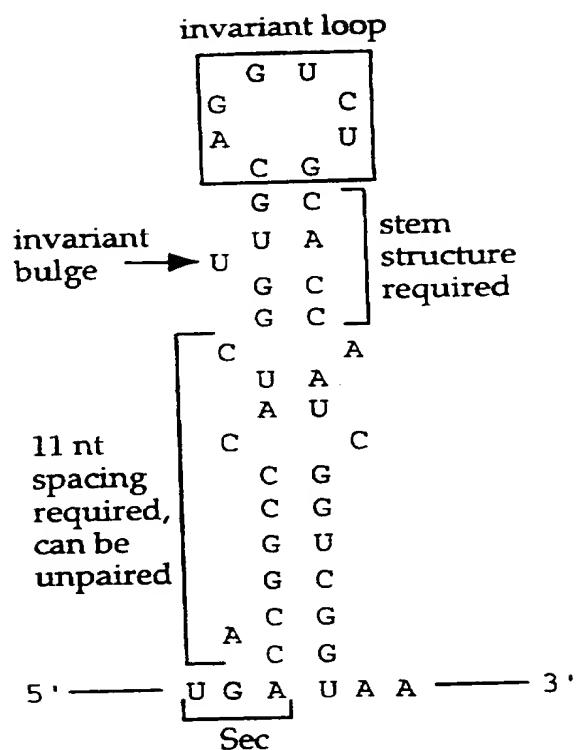
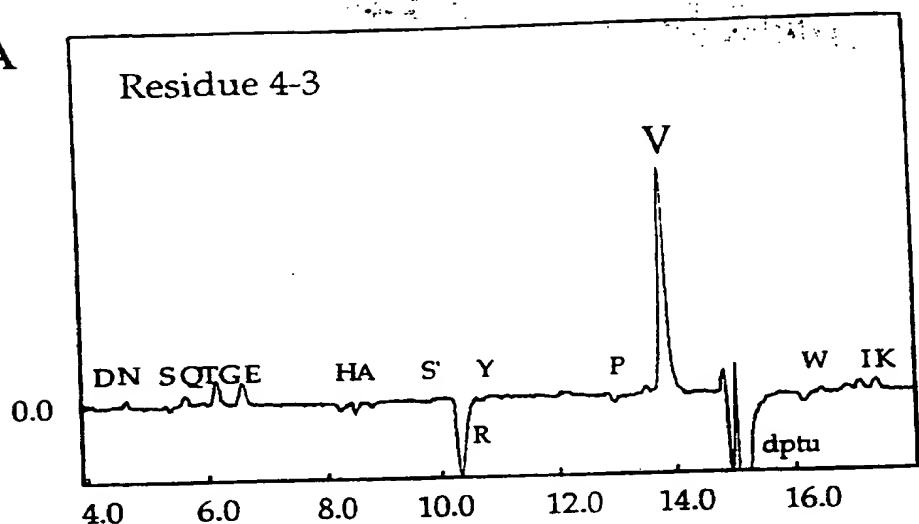
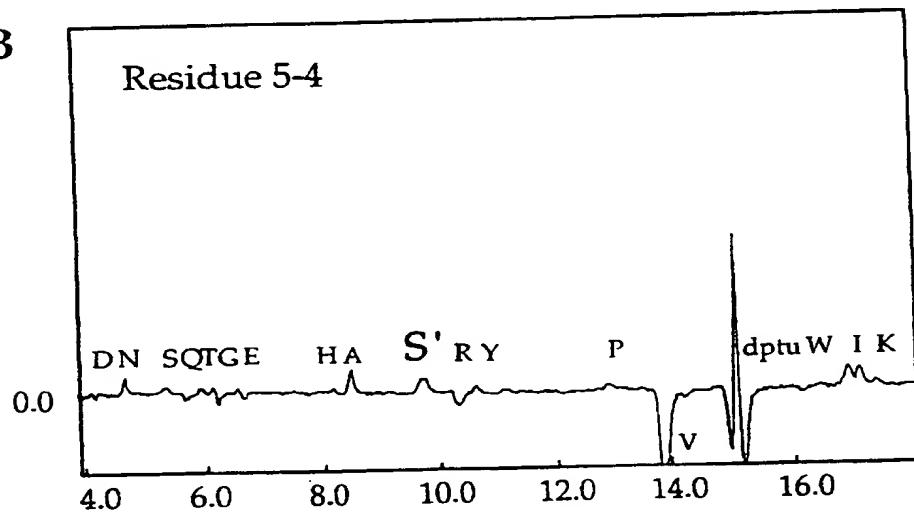


Figure 2

A



B



C

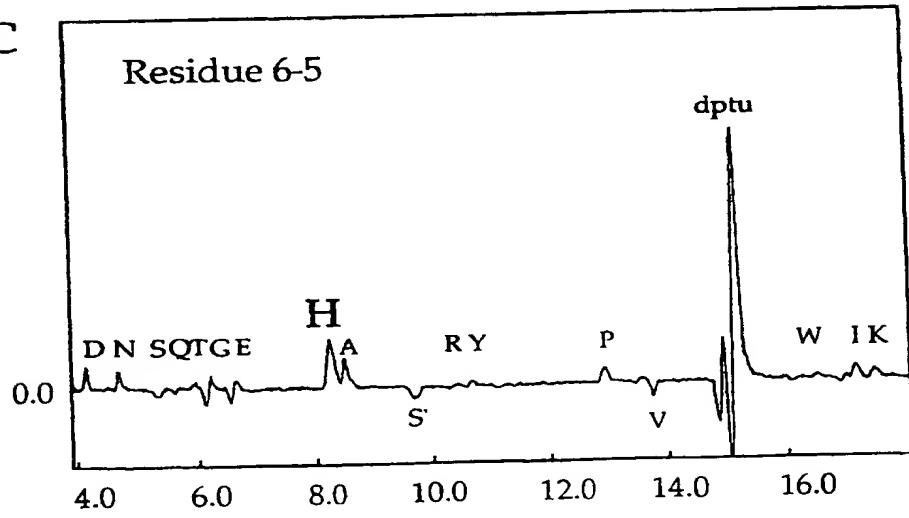


Figure 3

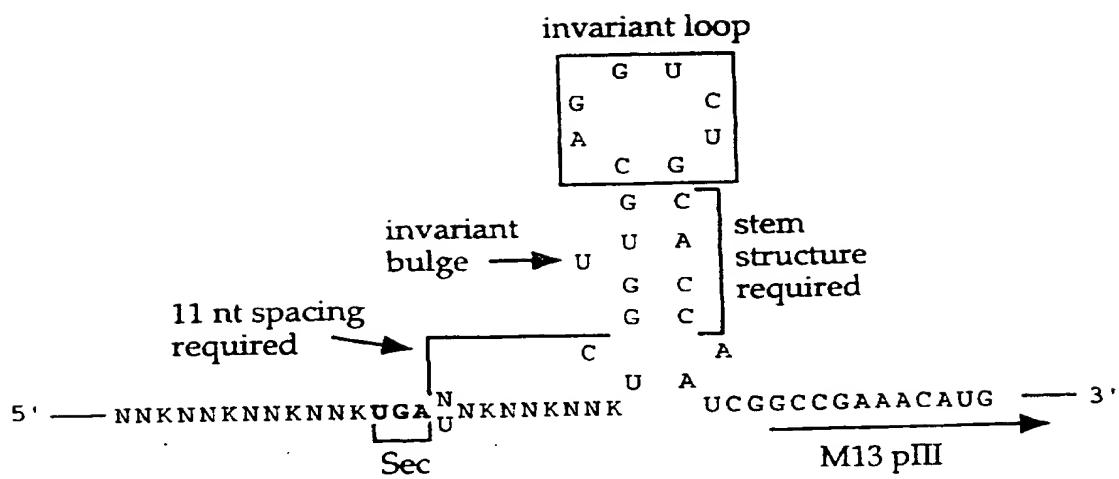


Figure 4

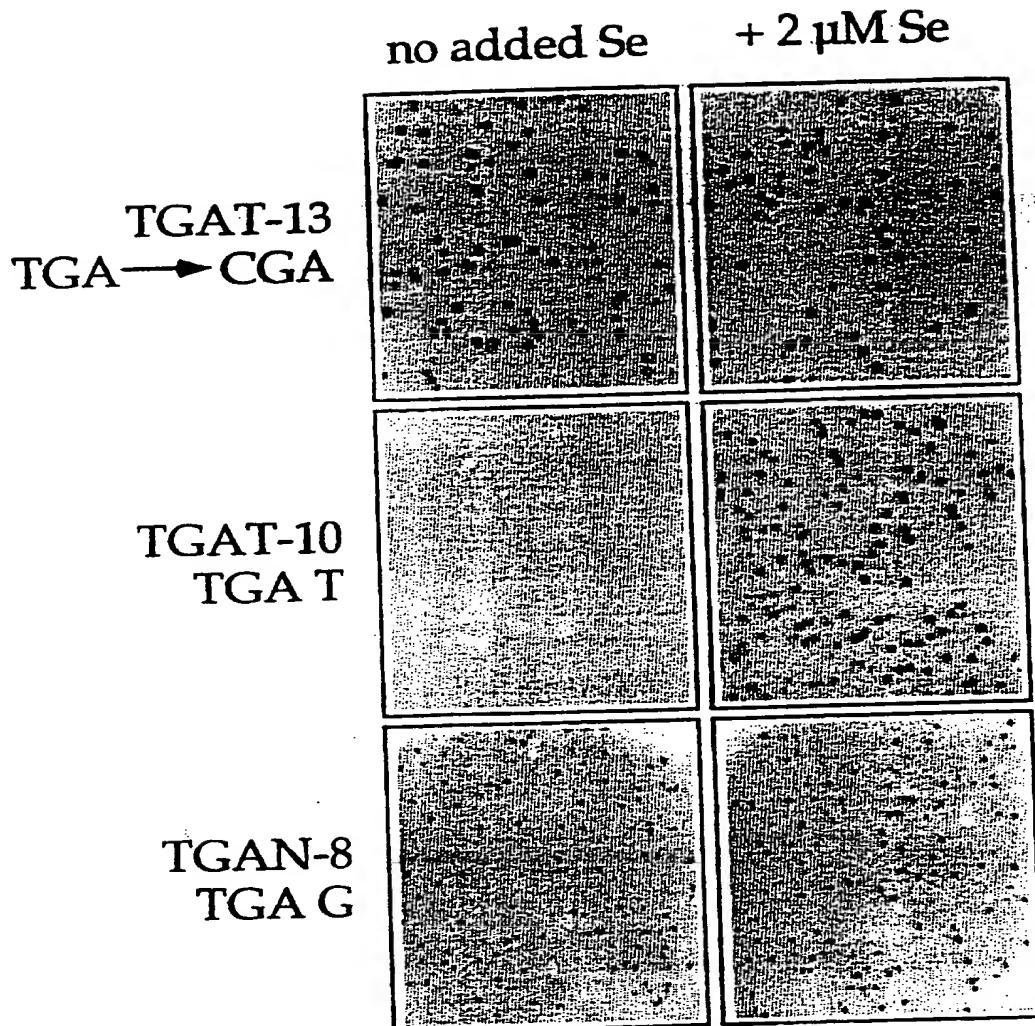


Figure 5

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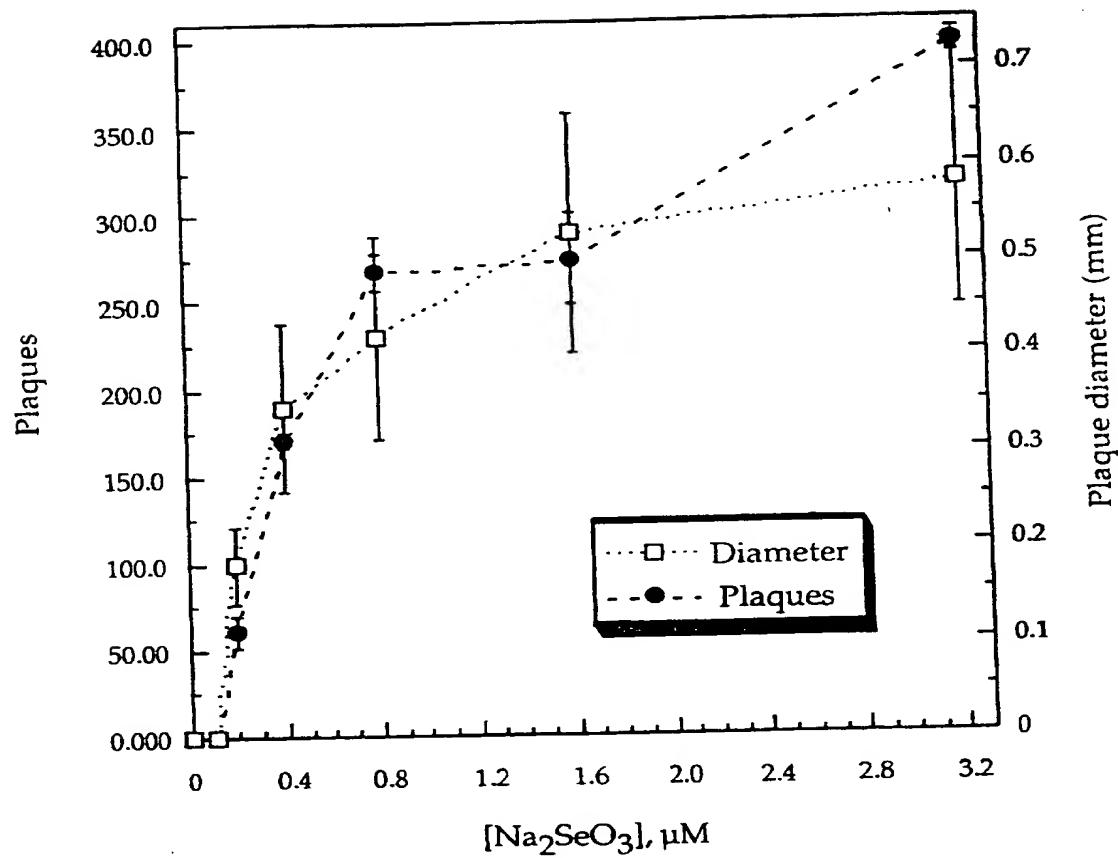


Figure 6

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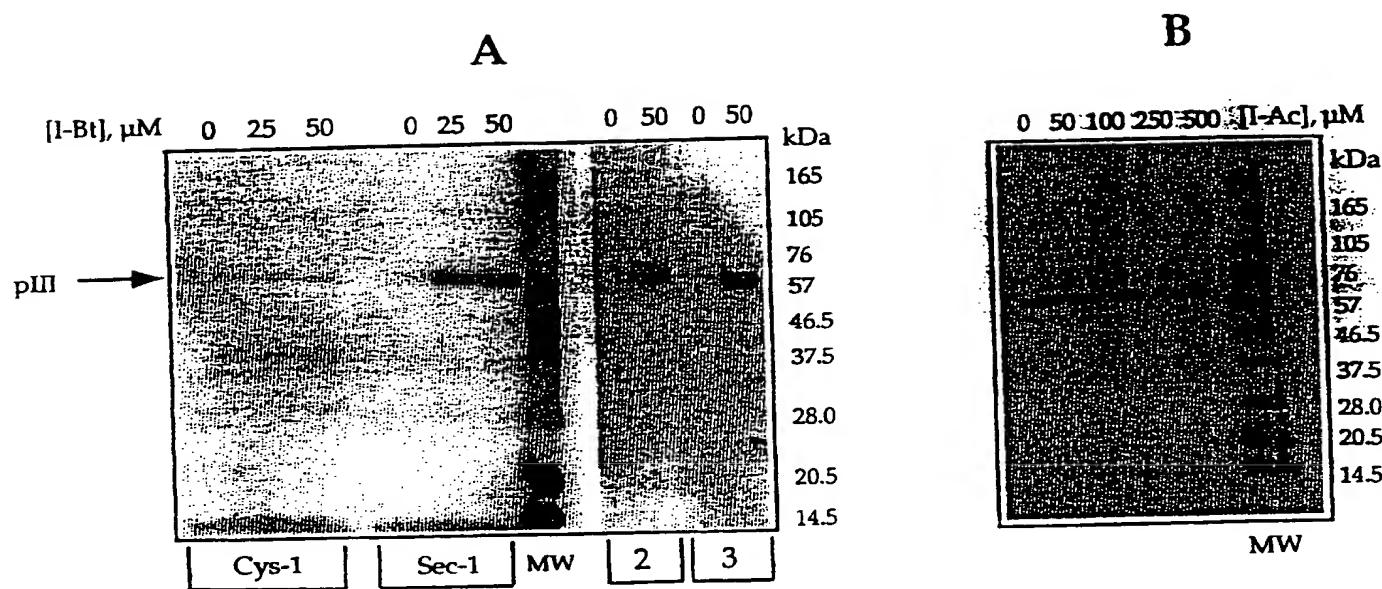
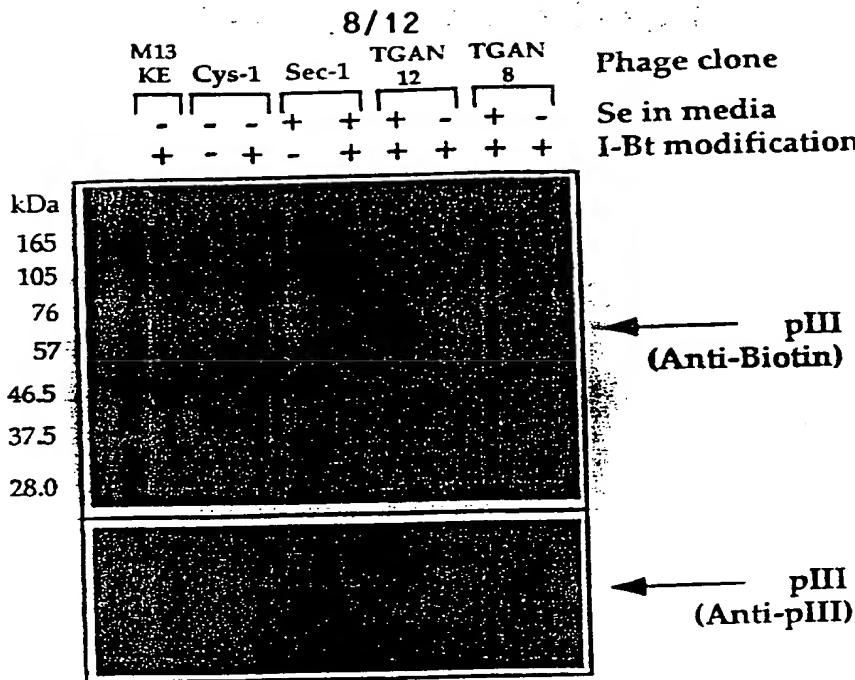


Figure 7

A



B

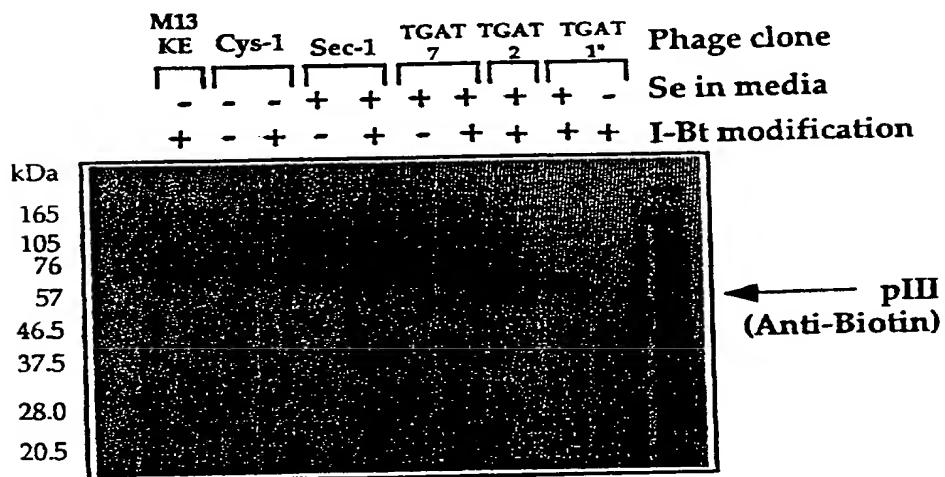


Figure 8

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Frq9

Clone	Random insert	Se-dependent?
TGAN-1	TCG TCT TTT CCT TGA AAG TCG CCT S S F P op ^a K S P	-
TGAN-2	AAG TGT ACG CTT TGA TCT ATG CTG K C T L Sec S M L	+
TGAN-3	TTG CTT TTG CCT TGA AAT GTT CTT L L L P op N V L	-
TGAN-4	ATG ACT ACG CAG TGA CCT TCT CTG M T T Q Sec S M L	+
TGAN-5	CAT ATT CCG CCG TGA ACG AAT CCT H I P P op T N P	-
TGAN-6	AAG GCT CTG TGT TGA CAG GAT TCG K A L C Sec Q D S	+
TGAN-7	CTT CTT CCG TGT TGA GCT CAG CCG L L P C Sec A Q P	+ ^b
TGAN-8	CAT CAT CCG ACT TGA GCT AAG CAG H H P T op A K Q	-
TGAN-9	ATG CCT CCT ACG TGA ATG GCT ACG M P P T op M A T	-
TGAN-10	AAT TGG TTT TCT TGA CTG ACT ACG N W F S op L T T	-
TGAN-11	CTG CAT CCG ACG TGA GCT CGG CCT L H P T op A R P	-
TGAN-12	GAT AGG GGG CCT TGA GCG AAG ATT D R G P op A K I	-
TGAN-13	GCG TCT TTG CCT TGA AGG ACG AGT A S L P op R T S	-

^aop: opal suppression: Sec or W, depending on Se availability^bTGAN-7 production was Se-enhanced; Se supplementation yielded larger (3-4x diameter) and more (10x) plaques.Table 1. Selected Library TGAN clones. TGAN-1 was expressed as a pMal-pIII fusion, and tryptophan incorporation was verified by N-terminal sequencing.

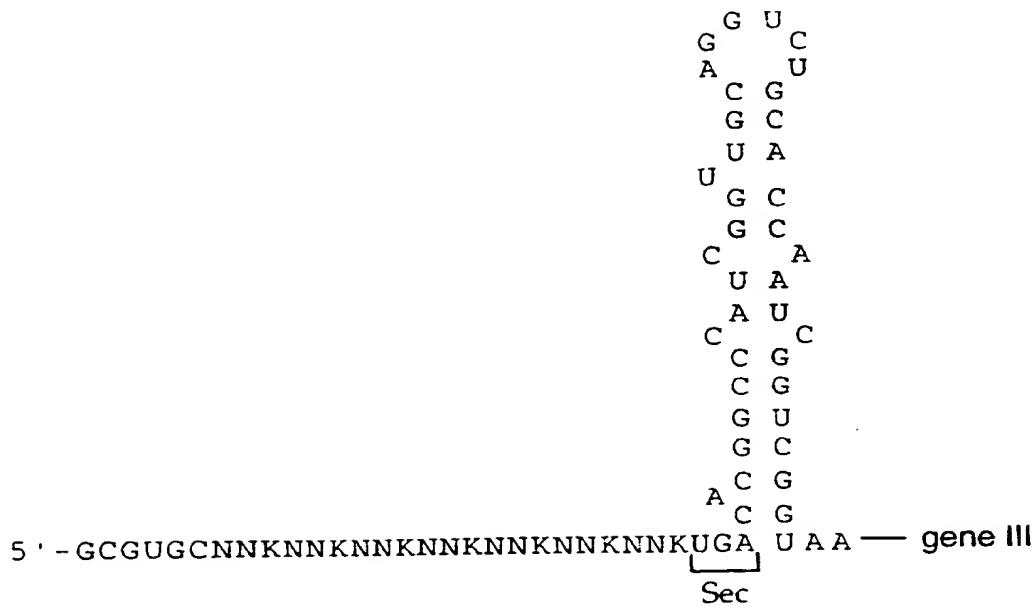
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Fig 10

Clone	Random insert								Se-dependent?
TGAT-1	L	P	R	Q	Sec	W	S	P	+
	TTG	CCG	CGT	CAG	TGA	TGG	TCT	CCG	
TGAT-2	L	T	G	T	Sec	C	Q	N	+
	TTG	ACT	GGT	ACG	TGA	TGT	CAG	AAT	
TGAT-3	E	A	S	R	Sec	C	S	T	+
	GAG	GCG	TCG	CGT	TGA	TGT	TCG	ACT	
TGAT-4	K	L	A	R	Sec	S	A	S	+
	AAG	TTG	GCT	CGT	TGA	TCG	GCG	TCG	
TGAT-5	N	G	A	Q	Sec	S	R	H	+
	AAT	GGG	GCG	CAG	TGA	TCG	AGG	CAT	
TGAT-6	A	S	P	T	Sec	F	K	P	+
	GCG	AGT	CCT	ACT	TGA	TTT	AAG	CCG	
TGAT-7	C	A	H	P	Sec	S	T	R	+
	TGT	GCT	CAT	CCG	TGA	TCT	ACT	CGT	
TGAT-8	Q	S	T	R	Sec	W	N	D	+
	CAG	TCG	ACG	CGG	TGA	TGG	AAT	GAT	
TGAT-9	I	V	E	S	Sec	L	N	P	+
	ATT	GTG	GAC	TCG	TGA	TTG	AAT	CCG	
TGAT-10	T	Q	R	M	Sec	L	P	P	+
	ACG	CAG	CGT	ATG	TGA	TTG	CCG	CCC	
TGAT-11	V	Q	Y	T	Sec	L	P	K	+
	GTG	CAG	TAT	ACG	TGA	TTG	CCG	AAG	
TGAT-12	A	G	Q	S	Sec	S	T	D	+
	GCT	GGG	CAG	TCG	TGA	TCG	ACT	GAT	
TGAT-13	L	S	A	S	R	S	Q	F	-
	CTG	TCT	GCG	AGT	CGA	TCG	CAG	TTT	

Table 2. Selected TGAT library clones. TGAT-13 carried a T → C point mutation within the opal codon.

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Translation/
Spontaneous oxidation

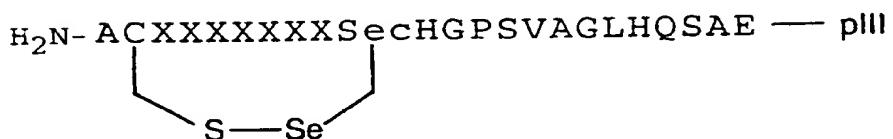


Figure 11

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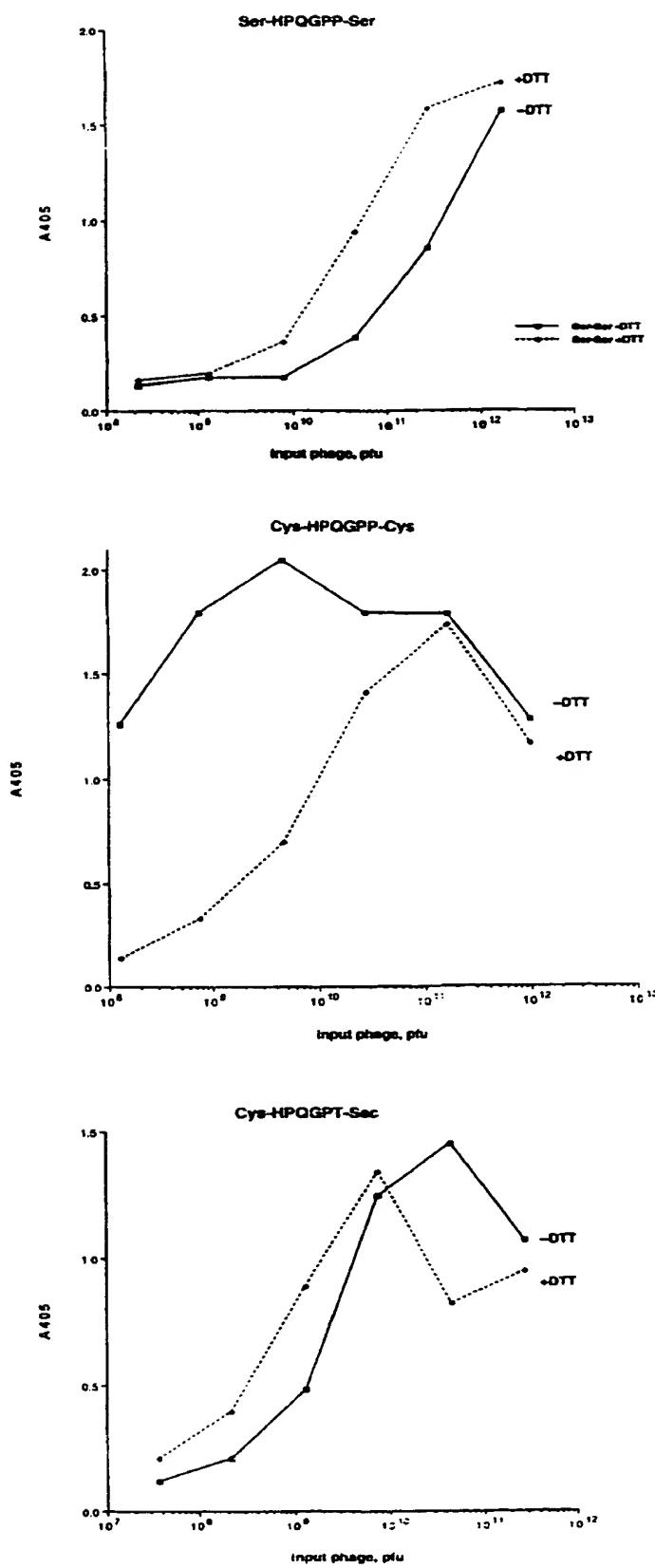


FIGURE 12